

REMARKS

Reconsideration and allowance of the above-identified application are respectfully requested. Claims 1-23 are currently pending.

The objections to the drawings raised on page 2 of the Official Action have been reviewed. In response thereto, Applicants submit herewith proposed drawing corrections wherein Figures 1 and 2 have been amended to include the legend "Prior Art." Additionally, new Figure 9 has been added in response to the drawing objection regarding illustrating the plurality of cumulative metrics and real path delay. In this regard, Applicants note that these features are, for example, described in Claim 1 as part of a method for estimating path delay. Accordingly, the figure illustrates these features as part of, for example, step 906 and step 908 in the flowchart of Figure 9. A corresponding paragraph has been added to the specification for consistency. No new matter has been added, as the flowchart of Figure 9 and corresponding amendment to the specification closely tracks originally filed Claim 1.

Upon receiving an indication from the Examiner that the proposed drawing corrections are approved, Applicants will file suitable formal drawings implementing these changes prepared and forwarded to the Examiner.

Claim 12 stands objected to as containing an informality in the preamble. Accordingly, by way of the foregoing amendments, Claim 12 has been amended as suggested by the Examiner.

Claims 1-23 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter set forth therein. In particular, the Examiner has asked for clarification regarding the claimed plurality of cumulative metrics and real path delay. For example, the Examiner has asked whether a plurality of cumulative metrics is the same as the real path delay and for clarification regarding the distinction between determining correspondence between a hypothesized path delay and a real

path delay and a method for using the corresponding one of the plurality of cumulative metrics to achieve such a determination.

In response to the rejection of the claims under 35 U.S.C. § 112, second paragraph, a brief summary of exemplary embodiments of the present invention will be provided in an attempt to clarify these issues. The step of hypothesizing a plurality of path delays is performed by, among other things, accumulating a plurality of metrics associated with estimates of the impulse response of the channel. This can be seen, for example, in blocks 309, 311 and 313 of Figure 3. Thus, each set of accumulated metrics corresponds to a hypothesized path delay. One of the hypothesized path delays can be selected to be the "real" path delay experienced by a received signal based on a degree of correlation between each hypothesized path delay and a given spreading sequence. Thus, the relationship between the hypothesized path delay and the real path delay is one of (at least in part) selection based on evaluation of the accumulated metrics. In order to clarify these relationships, Claims 1 and 12 have been amended solely for this purpose. Additionally, Claims 2, 3, 13 and 14 have been amended solely to address the antecedent basis issue raised by the Official Action. Accordingly, reconsideration and withdrawal of the rejection of Claims 1-23 under 35 U.S.C. § 112, second paragraph, is respectfully requested.

Claims 1, 4-10, 12 and 15-22 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentably over Miura (U.S. Patent No. 6,333,934) in view of Sutton (U.S. Patent No. 5,644,591). Prior to addressing this ground of rejection in detail, a brief summary of Applicants' novel methods and apparatuses for estimating path delays will first be described.

An exemplary embodiment of the present invention is shown in Figure 3 of this application. Therein, it can be seen that a delay estimator 300 includes a fade detector 305 which determines whether any parts of the received signal associated with any of the hypothesized delays have experienced a fade. The fade detector controls whether the output of the absolute value block 303 contributes to the accumulated sum for a first hypothesized delay, for the second hypothesized delay, or to the delay that is between the first and second hypothesized delays. As can be

seen by Figures 4a-c, when the amplitude of the received signal exceeds a predetermined threshold value, the time at which that threshold value is exceeded is used to determine which accumulated metric receives a contribution associated with the received signal. Thus, this exemplary embodiment of the present invention provides for selective accumulation of metrics based on the presence or absence of fades in the received signals at times associated with hypothesized path delays.

By way of contrast, and as correctly recognized in the Official Action, the Miura patent does not teach or suggest providing logic or a method that determines whether a fade has occurred and that uses the information associated with fade occurrence to selectively combine a measurement with a corresponding one of a plurality of cumulative metrics. Accordingly, the Official Action relies upon the Sutton patent to allegedly remedy this deficiency. In particular, as indicated on page 6 of the Official Action, reliance is placed on column 4, lines 14-18 of Sutton as allegedly determining a technique for whether a fade has occurred. Applicants respectfully disagree with this interpretation of the Sutton patent.

Referring to column 4, lines 8-36 of Sutton, this patent describes that when there is a difference between an internal clock in a base station and the internal clock in a mobile station, coherent accumulation may provide erroneous results due to the relative drift between the two clocks. According to Sutton, this can be solved by partitioning the accumulations into smaller portions, adding each portion internally in a coherent manner, and then adding the different portions non-coherently. Specifically, equations 2 and 3 in column 4 of Sutton describe the coherent and non-coherent accumulators, respectively, which are used to address clock drift between the base station and the mobile station.

However, Applicants respectfully submit that non-coherent accumulation techniques described in Sutton do not provide a technique for determining whether a fade has occurred. Accordingly, it is respectfully submitted that Sutton cannot reasonably be said to teach or suggest using the detection of the fade to selectively combine measurements with corresponding cumulative metrics as claimed, among other features, in Applicants' Claim 1 and 12 combinations. Thus, it is further

submitted that no combination of Miura and Sutton would have enabled one of ordinary skill in the art to have arrived at Applicants' claim combinations.

Claims 2, 3, 13 and 14 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Miura and Sutton and further in view of Baltersee (U.S. Published Application No. 2002/0037028 A1). However, Applicants respectfully submit that these dependent claims are also patentable for the same reasons set forth above with respect to the independent claims from which they depend, because Baltersee fails to remedy the deficiencies of Sutton described above.

Claims 11 and 23 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Miura and Sutton and further in view of Qiu (U.S. Published Application No. 2002/0097686 A1). Again, since Qiu fails to remedy the above-described deficiencies of Sutton, and it is respectfully submitted that no combination of Miura, Sutton and Qiu would have motivated one of ordinary skill in the art to arrive at Applicants Claim 11 and 23 combinations.

All of the objections and rejections raised in the Office Action having been addressed, it is respectfully submitted that the present application is in condition for allowance and a notice to that effect is earnestly solicited. Should the Examiner have any questions regarding this response or the application in general, he is urged to contact the undersigned at (540) 361-1863.

Respectfully submitted,

POTOMAC PATENT GROUP PLLC

By:



Steven M. duBois

Registration No. 35,023

Date: December 16, 2004

Potomac Patent Group, PLLC
P.O. Box 270
Fredericksburg, VA 22404
(540) 361-1863